Polydora rickettsi, a New Species of Spionid Polychaete from Lower California

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ONE COMPLETE POLYCHAETE SPECIMEN and two fragments collected by E. F. Ricketts in 1940 from Cape San Lucas, Lower California, are described here as members of a new species. The individuals concerned were taken from the tubes of *Spirobranchus incrassatus* Mörch, a serpulid polychaete. The new species resembles other polydorids in some characteristics, but is significantly different from all known species; the differences are discussed below.

Polydora rickettsi, n. sp.

The body is flattened in shape in the anterior segments, becoming more rounded posteriorly. The posterior end is not sharply tapered but is only about half the width of the first few segments. The modified 5th segment is greatly enlarged.

The complete specimen measured 10.0 mm. in length and included 104 segments. The anterior and posterior regions have a brown surface pigmentation, anteriorly along the lateral edges of the prostomium and posteriorly on all surfaces of the five prepygidial segments.

The rounded prostomium (Fig. 1) with its lateral lines of pigment produces an anterior end closely resembling that of the common California spionid, *Boccardia proboscidea* Hartman (1940). The greatly pronounced caruncle extends to the anterior margin of the modified 5th segment. There is a slight fold in the caruncle in the region bordered by the posterior half of the palpal bases but there is no nuchal tentacle. The eyes were not visible and may have been faded by the preservative, although the body pigmentation was not greatly affected.

The thick palpi are short, being equal in length to the first seven segments of the worm; they are tapered at the distal end. In dorsal view the peristomium is barely visible lateral to the palpi.

The 1st segment lacks notosetae but the notopodial lobe is present. The lobe is very small and is crowded in at the lateral edge of the palpal base. The neuropodial lobe is shifted dorsally but remains ventral to a line created by the notopodial lobes of the 2nd, 3rd, and 4th segments. These segments have notopodial and neuropodial lobes and setae. Their septal lines are erased dorsally by the presence of heavy longitudinal muscles paralleling the caruncle.

The enlarged 5th segment has a heavy musculature which overlaps most of segment 6 and part of segment 7 dorsally (Fig. 1). Anteriorly it crowds segment 4 and has a small anterior roll or cuff in that region. The heavy muscle bands associated with the specialized setae orient from the anterior lateral portion of the segment to the posterior median line. The anterior dorsal capillary setae precede the row of specialized setae. The latter have a main falcate tooth and a sharply curved pointed accessory tooth. There also is a flange located laterally on the main tooth at the level of the accessory tooth (Figs. 2, 3, 4). The companion setae are smaller plumose setae (Fig. 6). There is a very poorly developed bundle of neuropodial capillary setae. These are difficult to see and ordinarily are not taken when the specialized setae are removed for further study.

The 6th segment is about half the size of the 8th and the setal lobes are poorly developed.

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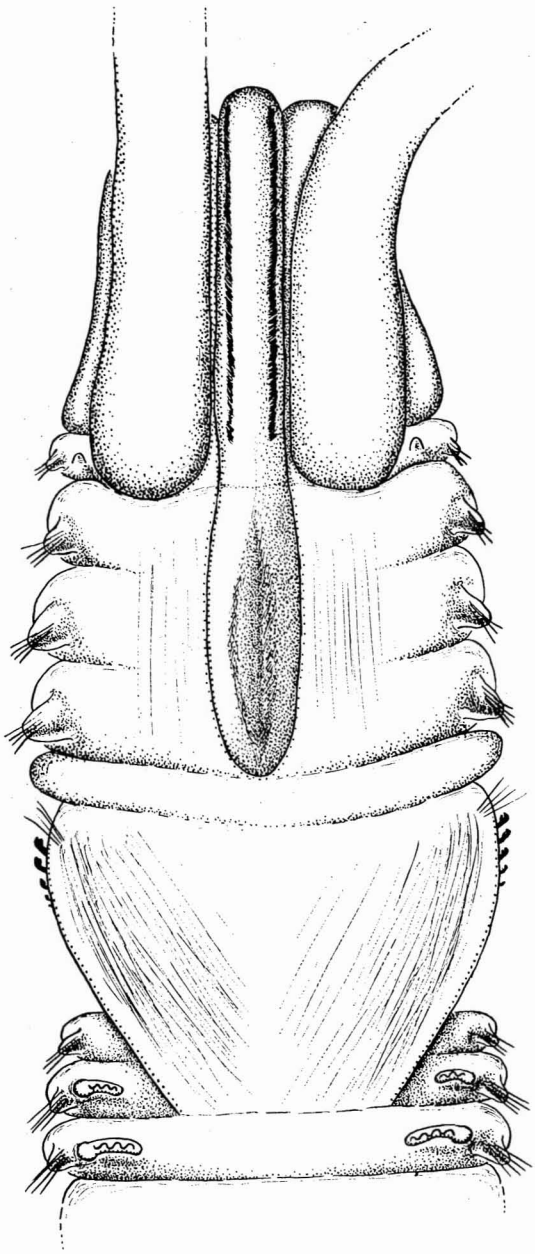
FIGS. 1–7. *Polydora rickettsi,* n. sp. 1, Anterior end, dorsal view (× 144); 2, 3, 4, specialized setae of modified 5th segment, new, worn, greatly worn, each at a different angle (× 555); 5, ventral hooded hooks from the 7th segment (× 900); 6, companion setae from modified 5th segment (× 1800); 7, pygidium, in posterior dorsal view (× 120).



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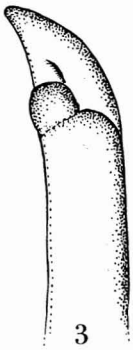

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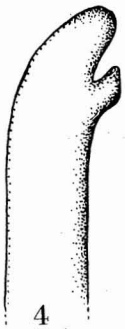

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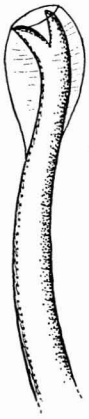

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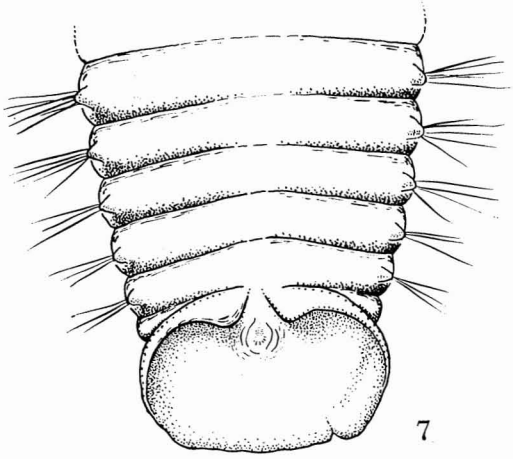

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TABLE 1

COMPARATIVE CHARACTERISTICS

SPECIES	PROSTOMIUM	LENGTH OF CARUNCLE	BRANCHIAE	FIRST SEGMENT NOTOSETAE	POSTERIOR SEGMENTS, NEUROPODIAL SPINES	HABITAT
Polydora rickettsi n. sp.	rounded (lateral pigmentation)	to the 5th segment	begin 7th, large to 30th	absent	absent	*Spirobranchus* tube
Polydora hoplura	bifid	to the 3rd	begin 7th, to 10th–20th last	absent	present (boathook)	shell of *Balanus*, sponges; shore, bottom of ship
Polydora giardi	bifid	anterior end or middle of the 4th	begin 10th, to 25th	present	absent	shale coralline algae
Polydora anoculata	bifid	to the 4th or 5th	begin 11th or 12th	present	absent	broken shells, *Amaroucium*
Polydora ciliata	weakly bifid	to the 3rd or mid-2nd	begin 7th, to 10th last	absent	absent	burrow in shells of many forms

The dorsal septal line is broken by the oblique muscular bands of the 5th segment. The muscles also reach into the 7th segment, but the latter is nearly full-sized and holds the 1st gill (not fully developed), and also the first representation of the distally bidentate neuropodial hooded hooks (Fig. 5). In these neuropodial setae the main tooth forms an oblique angle, with the shaft following the angle measurement system of Söderström (1920). There are seven hooded hooks mixed with capillaries in the 7th segment; the capillaries do not persist.

The branchiae are full-size from the 8th segment to the 30th; they decrease in size to the 66th segment, where they are continued posteriorly as small papillae.

There are no posterior notopodial hooks or spines.

The disclike pygidium has a dorsal notch and, although not broadly flared, is greater in diameter than the prepygidial segments (Fig. 7).

DISCUSSION

Other polydorids reported from Mexican waters are discussed in Rioja (1943) and include *Polydora armata, P. ciliata, P. cirrosa, P. commensalis, P. flava, P. giardi, P. heterochaeta, P. ligni, P. socialis,* and *P. tricuspa.* Of these species *P. giardi* and *P. ciliata* most closely resemble *P. rickettsi* in characteristics and habitat. Some of the characteristics of these three forms, and of the morphologically similar *P. hoplura* and *P. anoculata* from other waters, are compared in Table 1. In addition to the contrasting characters shown in the table the five species have characteristics in common, including the following: specialized setae with a main falcate tooth and a subterminal accessory tooth in the 5th segment, hooded hooks beginning in the 7th segment, disclike pygidia, and the absence of nuchal tentacles.

TYPE MATERIAL: The holotype and additional material have been deposited in the polychaete collections of the Allan Hancock Foundation, University of Southern California.

TYPE LOCALITY: *P. rickettsi,* known only from the tube of *Spirobranchus incrassatus* Mörch, was collected March 18, 1940, at Cape San Lucas, Lower California, Mexico.

BIOLOGY: The specialized setae of the 5th segment, which are like those present in other boring polydorid species, and the habitat of

this worm suggest the species to be a boring form. Steinbeck and Ricketts (1941: 368) report the following for *Spirobranchus incrassatus,* the associated serpulid species, "An important feature of the low intertidal landscape at Cape San Lucas, where the anastomosing calcareous tubes of this large and spectacular worm encrust the rocks."

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